

CLAIMS

WHAT IS CLAIMED:

1. A method, comprising:

5 identifying at least one wafer to be processed;

identifying a process tool in which said at least one wafer is to be processed;

obtaining enhanced metrology data regarding a process operation to be performed in

said identified process tool prior to processing said identified at least one

wafer in said identified process tool; and

10 positioning said at least one wafer in said identified process tool and performing said

process operation thereon.

2. The method of claim 1, further comprising, prior to performing said process
operation in said identified process tool, analyzing at least said enhanced metrology data to

15 determine if said process tool is acceptable for processing said identified at least one wafer.

3. The method of claim 1, wherein said identified at least one wafer is part of a
lot of wafers identified for processing in said identified process tool.

20 4. The method of claim 1, wherein said identified at least one wafer is a wafer
wherein production integrated circuit devices are formed thereon.

5. The method of claim 1, wherein said identified at least one wafer is a test
wafer.

6. The method of claim 1, wherein said identified process tool is at least one of a deposition tool, an etch tool, a furnace, an ion implant tool, a chemical mechanical polishing tool and a photolithography tool.

5 7. The method of claim 1, wherein said step of obtaining enhanced metrology data regarding said process operation comprises obtaining a greater amount of metrology data for said process operation relative to an amount of metrology data obtained for said process operation in accordance with a previously established metrology sampling plan.

10 8. The method of claim 1, wherein said step of obtaining enhanced metrology data regarding said process operation comprises obtaining a different type of metrology data for said process operation relative to a type of metrology data obtained for said process operation in accordance with a previously established metrology sampling plan.

15 9. The method of claim 1, wherein said step of obtaining enhanced metrology data regarding said process operation comprises increasing a frequency at which metrology data for said process operation is acquired relative to a frequency at which metrology data for said process operation is acquired in accordance with a previously established metrology sampling plan.

20 10. A method, comprising:
identifying at least one lot of wafers to be processed;
identifying a process tool in which said at least one lot of wafers is to be processed;

obtaining enhanced metrology data regarding a process operation to be performed in
said identified process tool prior to processing said identified at least one lot of
wafers in said identified process tool; and
positioning said at least one wafer from said identified lot of wafers in said identified
5 process tool and performing said process operation thereon.

11. The method of claim 10, further comprising, prior to performing said process
operation in said identified process tool, analyzing at least said enhanced metrology data to
determine if said process tool is acceptable for processing said identified at least one wafer.

12. The method of claim 10, wherein said identified at least one lot of wafers is
comprised of a plurality of wafers having production integrated circuit devices formed
thereon.

13. The method of claim 10, wherein said identified at least one lot of wafers is
comprised of a plurality of test wafers.

14. The method of claim 10, wherein said identified process tool is at least one of
a deposition tool, an etch tool, a furnace, an ion implant tool, a chemical mechanical
20 polishing tool and a photolithography tool.

15. The method of claim 10, wherein said step of obtaining enhanced metrology
data regarding said process operation comprises obtaining a greater amount of metrology data
for said process operation relative to an amount of metrology data obtained for said process
25 operation in accordance with a previously established metrology sampling plan.

16. The method of claim 10, wherein said step of obtaining enhanced metrology data regarding said process operation comprises obtaining a different type of metrology data for said process operation relative to a type of metrology data obtained for said process operation in accordance with a previously established metrology sampling plan.

17. The method of claim 10, wherein said step of obtaining enhanced metrology data regarding said process operation comprises increasing a frequency at which metrology data for said process operation is acquired relative to a frequency at which metrology data for said process operation is acquired in accordance with a previously established metrology sampling plan.

18. A method, comprising:

identifying at least one lot of wafers to be processed;

identifying a process tool in which said at least one lot of wafers is to be processed;

in response to the identification of said at least one lot of wafers and the identification of said process tool, increasing a frequency at which metrology data regarding a process operation to be performed in said identified process tool is acquired prior to processing said identified at least one lot of wafers in said identified process tool; and

positioning at least one wafer from said identified lot in said identified process tool and performing said process operation thereon.

19. The method of claim 18, further comprising, prior to performing said process operation in said identified process tool, analyzing at least said metrology data acquired as a

result of the increased frequency at which metrology data is acquired to determine if said process tool is acceptable for processing said at least one lot of wafers.

20. The method of claim 18, wherein said identified at least one lot of wafers is comprised of a plurality of wafers wherein production integrated circuit devices are formed thereon.

21. The method of claim 18, wherein said identified at least one lot of wafers is comprised of a plurality of test wafers.

22. The method of claim 18, wherein said identified process tool is at least one of a deposition tool, an etch tool, a furnace, an ion implant tool, a chemical mechanical polishing tool and a photolithography tool.

23. The method of claim 18, wherein said step of increasing the frequency at which metrology data is acquired comprises obtaining a greater amount of metrology data for said process operation relative to an amount of metrology data obtained for said process operation in accordance with a previously established metrology sampling plan.

24. A method, comprising:
identifying at least one lot of wafers to be processed;
identifying a process tool in which said at least one lot of wafers is to be processed;
in response to the identification of said at least one lot of wafers and the identification of said process tool, increasing an amount of metrology data acquired regarding a process operation to be performed in said identified process tool prior to

processing said identified at least one lot of wafers in said identified process tool; and

positioning said at least one wafer from said identified lot of wafers in said identified process tool and performing said process operation thereon.

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25. The method of claim 24, further comprising, prior to performing said process operation in said identified process tool, analyzing at least said increased amount of metrology data acquired to determine if said process tool is acceptable for processing said identified at least one wafer.

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26. The method of claim 24, wherein said identified at least one lot of wafers is comprised of a plurality of wafers having production integrated circuit devices formed thereon.

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27. The method of claim 24, wherein said identified at least one lot of wafers is comprised of a plurality of test wafers.

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28. The method of claim 24, wherein said identified process tool is at least one of a deposition tool, an etch tool, a furnace, an ion implant tool, a chemical mechanical polishing tool and a photolithography tool.